RISK MANAGEMENT REPORT

RISK GOVERNANCE

The primary role of the Board is to promote Macquarie’s long-term health and prosperity. The Board is ultimately responsible for Macquarie’s risk management framework including oversight of its operation by Management. Macquarie’s robust risk management framework supports the Board in its role and oversight of the framework is a key priority.

Macquarie recognises that a sound risk culture is a fundamental requirement of an effective risk management framework. The long-held foundations of Macquarie’s risk culture are the principles of What We Stand For – Opportunity, Accountability and Integrity. Staff are made aware that these principles are expected to form the basis of all day-to-day behaviours and actions.

Board Committees, Management Committees and ultimately individuals support the Board in its oversight.

Further details are available in Macquarie’s Corporate Governance Statement at macquarie.com/leadership-corporate-governance

RISK MANAGEMENT FRAMEWORK

Overview

Macquarie’s risk management framework consists of its systems, structures, policies and processes. Under the framework, staff are responsible for identifying, measuring, evaluating, monitoring, reporting and managing material risks.

The risk management framework incorporates active management and monitoring of a range of risks. These include credit, cyber, environmental and social (including climate change), equity, legal, liquidity, market, model, operational, regulatory and compliance, reputation and tax risks. It also includes risk culture and conduct risk management frameworks.

The risk management framework applies to all business activities across Operating and Central Service Groups.

Policies and procedures are in place to manage the risks arising in all operations. Formalising practices and principles into policies assists in the consistent management of risks. It also results in the sharing of experience and expertise gained from managing risks in various business activities. Macquarie’s key risk management policies are reviewed annually by the owner.

Material changes are approved by the Board.

The assumption of risk is made within a calculated and controlled framework that assigns clear risk roles and responsibilities represented by ‘three lines of defence’:

- primary responsibility for risk management lies at the business level. This is the first line of defence. Part of the role of all business managers throughout Macquarie is to ensure they manage risks appropriately

- the risk management function forms the second line of defence and independently assesses all material risks

- the third line, which includes Internal Audit, independently reviews and challenges the Group’s risk management controls, processes and systems.

Key Components

Core risk management principles

Macquarie’s principles have remained stable and continue to be effective. These are:

- ownership of risk at the business level: Group Heads are responsible for identifying risks within their businesses and ensuring appropriate management. Before taking decisions, clear analysis of the risks is sought to ensure those taken are consistent with the risk appetite and strategy of Macquarie

- understanding worst case outcomes: Highly experienced professionals at Macquarie use both quantitative and qualitative inputs to examine the consequences of worst case outcomes and determine whether these are acceptable. This approach is adopted for all material risk types and is often achieved by stress testing. In particular, the market risk management framework is based primarily on the application of stress tests, rather than statistical models. Macquarie applies limits to contingent losses from worst case scenarios that include market movements larger than have occurred historically, for example, an instantaneous 40% gap move in stock prices. These limits effectively constrain position taking by divisions trading in products where the current risk appears low but potential risk exists in extreme loss events. Macquarie has over 14,000 contingent loss limits that consider a variety of worst case scenarios

- requirement for an independent sign-off by risk management: Macquarie places significant importance on having a strong, independent Risk Management Group (RMG) charged with signing off all material risk acceptance decisions. It is essential that RMG has the capability to do this effectively. RMG has invested in recruiting skilled professionals, many with previous trading or investment banking experience. For all material proposals, RMG’s opinion is sought at an early stage in the decision-making process. The approval document submitted to Senior Management includes independent input from RMG on risk and return.

Macquarie’s risk culture is well established

A sound risk culture has been integral to Macquarie’s risk management framework since inception. It is continuously being maintained and improved. Primary responsibility for risk management in Macquarie, including risk culture, is at the business level.

The Board, assisted by the Board Risk Committee (BRiC), is responsible for:

- forming a view of Macquarie’s risk culture and the extent to which that culture supports Macquarie’s ability to operate consistently within its risk appetite

- the identification of any desirable changes to evolve Macquarie’s risk culture and for ensuring that Macquarie takes steps to address those changes.

Macquarie’s long standing approach to risk culture assists the Board and Management in meeting their responsibilities.
Maintaining an appropriate risk culture
Macquarie’s approach to risk culture is based on three main components:

Setting behavioural expectations
The Board recognises the importance of, and is committed to, a sound risk culture throughout Macquarie. Senior Management oversees performance and continually evolves Macquarie’s expectations regarding appropriate behaviours.

These behavioural expectations are outlined in the Board approved Code of conduct, actively promoted by Senior Management and cascaded through the organisation. They include:

- individual accountability: each person understands and meets their role and responsibilities; all staff are accountable to our clients, community, shareholders and staff for their actions
- policies, procedures and systems: for every individual, compliance is fundamental
- proactive approach: individuals are encouraged to;
  - remain vigilant for new and unexpected risks, and potential adverse consequences of actions
  - seek advice from appropriate experts
  - escalation: each individual is obliged and encouraged to escalate concerns when they make a mistake or see something that may be a breach of Macquarie’s Code of conduct or a policy
- fair dealing: it is a fundamental responsibility for staff to deal honestly and fairly in their relationships with our clients.

Leading and executing
Management implements behavioural expectations through:

- leadership actions and communication
- organisational governance
- incentives and consequence management
- organisational and individual capability.

Monitoring, measuring and reporting
Macquarie monitors and measures its risk culture to gauge effectiveness while promoting continuous improvement. Key mechanisms include but are not limited to:

- policies and processes in relation to Board and Management governance, which include reporting and escalation of issues
- processes to govern the identification, recording, management and reporting of incidents
- independent oversight and sign-off by RMG for material risk decisions
- intense scrutiny of material business activities and risk decisions at the business level by Senior Management and at Group level led by BRIC
- personal observation and assessment by Board and Senior Management, including frequent interaction with staff, attendance at formal staff events, and the Board schedules two separate regional visits to Macquarie overseas offices annually

- established audit program including specialist risk mindset and behaviour reviews focused on risk culture
- rigorous remuneration monitoring mechanisms.

Multiple regular reports relating to risk culture are provided to Senior Management and the Board. Reports incorporating behavioural issues are prepared by all businesses, RMG divisions, Human Resources (HR) and Macquarie’s Integrity Office.

Consequence management
Effective consequence management is also a key aspect of Macquarie’s risk management framework and risk culture. In addition to Macquarie’s group-wide guiding principles for consequence management, Operating and Central Service Groups may apply specific guidelines or procedures. Actions undertaken can assist staff in building their skills and knowledge. Where appropriate, actions can also be a deterrent against further breaches by reinforcing proper standards of staff conduct.

Macquarie aims to apply consequences for non-compliance in a timely manner, and as fairly and consistently as possible to ensure all Macquarie staff act with integrity.

Decisions about consequences are made by Management supported by HR, RMG and additional stakeholders relevant to that particular matter. Depending on the level of materiality, the matter may be escalated to the CEO, Executive Committee and Board.

In determining the appropriate consequence for a breach by a staff member, relevant factors (both mitigating and aggravating) are considered. Potential consequences may include, but are not limited to:

- placing the staff member under increased supervision and/or monitoring including pre-vetting of work and increased sample testing of work
- issuing a verbal warning
- issuing a written warning (including a first and final written warning)
- dismissing the staff member (with or without notice)
- a financial consequence in respect of any discretionary element of remuneration
- a consequence that impacts performance rating or promotion
- additional training.

Conduct risk management framework
Macquarie defines conduct risk as the risk of improper, unlawful or unethical behaviour or action that may have a negative impact on our clients or counterparties or the fair and effective operation of the markets in which Macquarie operates.

Conduct risk may arise inadvertently or deliberately in any of Macquarie’s activities or businesses, both retail and wholesale.
RISK MANAGEMENT REPORT
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Management approach
Macquarie’s approach to conduct risk management is integrated into how staff manage their responsibilities and conduct themselves in Macquarie’s business every day. The existing risk management framework addresses conduct risk by:
- establishing and maintaining an effective risk culture that drives good conduct
- having in place the necessary policies, controls, processes and reporting mechanisms to manage compliance, legal, reputation and operational risks.
Consistent with Macquarie’s ‘three lines of defence’ approach to risk management, Operating and Central Service Groups are primarily responsible for ensuring that conduct risks are appropriately managed.
Macquarie has a number of controls and processes in place to identify and manage conduct risks, including:
- proactive assistance to businesses to identify, assess, mitigate and manage compliance obligations and relevant risks
- analysis of regulatory and business developments, risk incidents, audit and regulatory findings. Where necessary, businesses are assisted with the definition and implementation of appropriate remediation actions
- review of specific transactions, new products and businesses including identifying and escalating potential conflicts of interest, and advising on the application of laws, regulations and policies
- adoption of a risk-based approach to performing independent monitoring and surveillance activities in addition to the supervisory activities performed by Operating and Central Service Groups
- regular training.
New and emerging conduct risks continue to be identified through the annual strategy and business planning process.
Risk management framework support
In addition to those noted above, multiple aspects of the risk management framework support Macquarie’s risk culture and management of conduct risk including:
- Macquarie’s businesses are fundamentally client based. Greater emphasis is placed across Macquarie on fostering long-term relationships with our clients. This facilitates building franchise businesses as opposed to short-term profits from proprietary trading
- The role of risk management staff is one of active engagement in risk taking decisions. In accordance with the principle of risk ownership, the primary risk analysis and initial decisions to reject or accept a transaction are taken by Operating and Central Service Groups. In its review of a new proposal, RMG provides independent confirmation of the risk acceptance decision. RMG works closely with each deal team sharing the goal of making the transaction successful and, where applicable, requiring improvements to the transaction terms. Transferring knowledge to transaction teams, to enable the same risk management principles to be applied at an early stage to future proposals is strongly emphasised
- Macquarie’s remuneration policy for Senior Management encourages a long-term view in decision making through retention of remuneration and equity participation. We discourage excessive risk-taking as incentives are aligned with Macquarie’s long-term profitability. The principles behind Macquarie’s current remuneration structure have been in place for many years.
Risk appetite management
Risk appetite setting
The Board reviews and endorses Macquarie’s risk appetite as part of the annual corporate strategy review process. Risk appetite is the nature and amount of risk Macquarie is willing to accept as outlined in the Risk Appetite Statement (RAS).
Macquarie’s risk culture supports its ability to operate within the Board-approved RAS. In addition, behavioural expectations encourage staff to comply with the processes, limits and policies that put the principles of the RAS into operation.
The RAS sets out the degree of risk that Macquarie is willing to take overall and for each material risk type. It also conveys the process for ensuring that risk limits (tolerances) are set at an appropriate level, monitored and reviewed.
The principles of the RAS are implemented primarily through the following four mechanisms:
New product and business approval process
All new businesses and significant changes to existing products or processes are subject to a rigorous, interactive approval process that adheres to the principles stated in the RAS. This results in constructive dialogue on risk matters between RMG and the relevant business.
This formal process is designed so that the proposed transaction or operation can be managed properly, without creating unwanted risks for Macquarie. All relevant risks are reviewed to ensure they are identified and addressed prior to implementation. These risks are also monitored on an ongoing basis. The approvals of RMG, Finance Division, Taxation Division, Legal and Governance (LGL) and other relevant stakeholders within Macquarie are obtained.
RMG also checks that all necessary internal approvals are obtained prior to commencement.
The Operational Risk function within RMG oversees the new product and business approval process.
Internal Audit performs an audit of the operations of any significant new businesses based on an assessment of the associated risk faced by Macquarie. The audit typically takes place within six months of an acquisition or launch. It includes confirmation that operations are in line with the new product and business approval document.

Limits
In many cases, limits translate risk appetite principles into hard constraints on individual businesses. These consist of specific risk limits given to various businesses and products or industry sectors, as well as the Global Risk Limit that constrains Macquarie’s aggregate level of risk.
Macquarie sets the Global Risk Limit with reference not only to capital but also to earnings so that in a prolonged, severe downturn, earnings and surplus capital cover losses and market confidence in Macquarie is maintained.
Under Macquarie’s ‘no limits, no dealing’ approach, individual credit and equity exposures must fit within approved counterparty limits. Market risk exposures are also governed by a suite of individual and portfolio limits.
These granular limits are set to allow businesses to achieve their near-term plans while promoting a reassessment of the opportunity and associated risks as the limit is approached.
RMG’s oversight of risk is based on the following five principles:

- Collaborative effort across the teams to ensure a detailed analysis and reporting. Risk-adjusted performance metrics for each division are significant inputs into performance based remuneration.

Communication and training
The RAS is accessible to all staff and is referred to in the Code of conduct. In addition, the principles in the RAS are communicated to relevant staff through formal and informal training programs. These include regular communication of policies to key staff, training programs for specific policies and mandatory Director-level staff training on the risk management framework.

Requirement to consider risk-adjusted returns
The RAS states that:
- Macquarie pursues an appropriate and resilient long-term return on its capital
- Transactions must generate returns in proportion to the risks.

Accordingly, proposals for all significant new deals, products and businesses must contain an analysis of risk-adjusted returns.

Risk capacity is allocated to activities that earn an appropriate reward for the risk. This is a binding discipline on risk acceptance to ensure the risk-return trade-off does not deteriorate. The level of acceptable return for any proposal must also account for strategic fit and broader risk analysis (e.g. tail risk and concentration).

Existing businesses are subject to regular risk-return monitoring and reporting. Risk-adjusted performance metrics for each division are significant inputs into performance based remuneration.

RISK MANAGEMENT GROUP
RMG, which forms the second line of defence, is an independent and centralised unit responsible for identifying, assessing and monitoring risks across Macquarie. RMG designs and oversees implementation of the risk management framework.

It is structured into specialist teams and employs an integrated approach to risk analysis and management across risk classes. RMG’s assessment and monitoring of risks involves a collaborative effort across the teams to ensure a detailed analysis takes place both at the individual and aggregate risk level.

RMG’s oversight of risk is based on the following five principles:
- Independence: RMG is independent of Macquarie’s Operating and other Central Service Groups. The Head of RMG, as Macquarie’s CRO, reports directly to the CEO with a secondary reporting line to the BRiC. RMG approval is required for all material risk acceptance decisions
- Centralised prudential management: RMG’s responsibility covers the whole of Macquarie. It assesses risks from a Macquarie-wide perspective and provides a consistent approach across all operating areas
- Approval of all new business activities: Operating areas cannot undertake new businesses or activities, offer new products, or enter new markets without first consulting RMG. RMG reviews and assesses the risks, and sets prudential limits. Where appropriate, these limits are approved by the Executive Committee and the Board
- Continuous assessment: RMG continually reviews risks to account for changes in market circumstances and developments within Macquarie’s operating areas

- Frequent monitoring: Centralised systems exist to allow RMG to monitor credit and market risks daily. RMG staff liaise closely with Operating and Central Service Groups.

Further details on RMG’s structure and the management of specific risks are available at macquarie.com/risk-management

INTERNAL AUDIT
Internal Audit, as part of the third line of defence, provides independent assurance to Senior Management and the Board on the adequacy and operational effectiveness of Macquarie’s internal controls, risk management, and governance systems and processes. Internal Audit provides an objective assessment on whether risks have been adequately identified, appropriate internal controls are in place to manage those risks and whether those controls are working effectively.

A specialist Risk Mindset and Behaviours team, composed of risk culture specialists, performs reviews across Macquarie using a well-established assessment methodology. The prevailing risk management attitudes and behaviours of selected functions in Operating and Central Service Groups are assessed. Areas of relative strengths are highlighted. Areas for improvement and required actions are identified.

Findings from all Internal Audit work are followed up to ensure remediation.

Internal Audit is independent of both business management and the activities it reviews. The Head of Internal Audit is jointly accountable to the BAC and the CRO. The BAC approves the appointment and removal of the Head of Internal Audit who has unlimited access to the BAC.

MARKET AND CREDIT RISK
Year end performance indicators
Macquarie monitors and measures a range of risks as outlined above in the risk management framework overview. The following graphs provide historical and current year information on key market and credit risks.

Trading revenue
The effectiveness of Macquarie’s risk management methodology can be partially measured by Macquarie’s daily trading results. These are daily profit and loss results that are directly attributable to market based activity from Macquarie’s trading desks. In light of uncertain market conditions, the small quantity and magnitude of daily losses incurred by Macquarie are indicative of an effective risk management framework and business operations focused on servicing our clients’ needs.

Macquarie’s market risk activities continue to be based on earning income from franchise businesses and margin from client flows. The majority of trading income is derived from client franchise activities rather than outright proprietary trading activity. Macquarie’s trading results over time have shown consistent profits and low volatility. This is evident in the graph below and reflects the client-based nature of trading activities. In FY2017 Macquarie made a net trading profit on 235 out of 261 trading days (2016 results: 209 out of 262 trading days) and trading loss profiles were consistent with previous years. Larger trading profits were observed in H116 from improved trading opportunities driven by increased market volatility.
Daily Trading Profit and Loss

Value-at-Risk
VaR provides a statistically based summary of overall market risk in Macquarie. The magnitude of VaR reflects changes in positions as well as changes in market volatility, correlations and enhancements to the model. The integrity of the VaR model is regularly tested against daily profit and loss.

Macquarie’s market risk increased from multi-year lows over the first half of the year from greater exposure to equities. Fluctuations over the second half of the year were driven by commodity positions. VaR remains modest in comparison to capital and earnings. It represents less than 0.1% of total equity.

Aggregate VaR
Loan impairment review

All exposures are subject to recurring review and assessment for possible impairment. Provisions for loan losses are based on an incurred loss model that recognises a provision where there is objective evidence of impairment at each balance date. Specific provisions are recognised where a particular impairment is identified. Where applicable, the calculation for specific provisions is based on the discounted values of expected future cash flows. Facilities for which no individually assessed provision is required are evaluated collectively for impairment. These are representative of losses that have been incurred but not yet identified.

The increase in impaired assets is primarily driven by new impaired exposures in CGM related to the energy sector.

Ratio of provisions and impaired assets to loans, advances and leases

![Graph showing the ratio of provisions and impaired assets to loans, advances and leases from 2008 to 2017.]

Notes:
- Loan assets exclude securitised mortgages, securitised Macquarie Capital loans/leases, segregated futures funds and receivables in the form of fees
- Net impaired assets and net losses exclude investment securities
- Collective provision is intended to cover losses inherent in the existing overall credit portfolio which are not yet specifically identifiable
- Net credit losses represent total profit and loss impact in the stated period due to additional individually assessed provisions and direct write-offs net of any write-backs.